Child Level of Functioning and Intensive Family Preservation

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Statement of the Research Problem

Intensive family preservation services (IFPS) have emerged as a service innovation in both the child welfare and children's mental health service systems. They involve the provision of intensive, short term, home-based services to families at imminent risk of placement of a child. In Colorado, initial development of IFPS in the public sector was through the Division of Mental Health (DMH).

Existing research on IFPS has centered on the child welfare system, with primary attention given to placement prevention as the outcome of choice. Increasingly research focuses on more direct measures of client functioning, and the relationship to placement prevention. Several studies (Nelson, 1988; Bath et al., 1992; Fraser et al., 1991) indicate that child-related problems are correlates of placement.

For the children's mental health system, *child level of functioning* is an increasingly important variable in evaluation of interventions. Interest is driven by theoretical shifts from psychodynamic and behavioral models toward an ecological approach to assessment, intervention and research. Central to this effort is the development of Level of Functioning (LOF) measures. Colorado has also moved in this direction, developing The Colorado Client Assessment Record (CCAR), a measure which includes nine, domain specific, level of functioning scales and a 78 problem-area checklist.

This study examines the importance of child level of functioning in child mental health family preservation. Three areas are of interest: 1) the nature of the family preservation interventions, 2) measurement of children's level of functioning, and 3) the multi-variate predictors of success.

Research Question and Methodology: What is the service context of IFPS in Colorado's Mental Health System?

Establishing a complete description of service innovations is imperative prior to examination of client outcomes and correlates of those outcomes. In addition, existing research in family preservation indicates that heterogeneity of service evolution is common across sites

(Schuerman, et al., 1993; McDonald & Associates, 1990). Aggregate analysis of quantitative data may obscure important differences among sites.

Site visits were conducted at each of the eight IFPS service sites, during which 18 interviews were conducted with program directors, and supervisory and service staff. Qualitative interview data was gathered in the form of taped interviews, each of which followed a semi-structured interview guide focusing on service philosophy, intervention models and agency-community contexts.

Results and Discussion

The differing environments in which programs operate have driven slight divergence in program models, with the primary impacts on *intervention length* and *mechanisms for program access*. These differences are small, however and must be considered in the context of the many similarities among service sites. Two sites were found to have strayed considerably from an IFPS model, and data from these sites was dropped from subsequent quantitative analysis. The remaining programs evidenced striking similarities in philosophies of service and types of interventions offered. The dominant service themes are: 1) the power of the helping relationship, 2) the strength of the crisis intervention/brief intervention foundation, and 3) the commitment to skill-focused intervention. It is reasonable to consider these sites as delivering a consistent model.

Program staff described a "different" kind of helping relationship which is strengths-based, collaborative and intense. The intensity and quality of this relationship vary from traditional helping relationships in the ways the relationship is based on basic human connections in addition to professional roles, connections which are deepened by the intensive, home-based nature of the work. The use of short-term, skill-focused interventions are central to establishing this relationship.

The helping relationship is rarely modeled in quantitative approaches to specifying IFPS "intervention." Emphasis has been on the structure of intervention (number of contacts, length of service, etc.) and on targets of intervention (problem areas identified and service goals.)

Research Question and Methodology: What is the factorial structure of the Colorado Client Assessment Record?

The CCAR assesses mental health functioning in nine domains (Substance Use, Family, Interpersonal, Role Performance, Social Legal, and Self care/basic needs) using a combination of rating scales and checklist items. It is gathered on all DMH clients, including children, however no exploration of its factorial structure has been done for a child mental health population. It is hypothesized that the nine factor model which forms the conceptual

organization of the instrument best fits the data.

Each of the nine Level of Functioning (LOF) scales is measured on a 0 to 50 point scale. The instrument also contains 78 problem checklist items, 69 of which are conceptually linked to the level of functioning scales and which describe attributes of the client and of the client's interaction with their environment. These checklist items are organized into 14 subgroups which are linked to the 9 LOF scales. Fourteen Personal Problem Profile (PPP) scales were developed in which the scale score consists of the number of checklist items present for the client.

The sample consists of a randomly selected group of 5,000 children who received mental health services between July, 1990 and December, 1993. A 50% sample is used for exploratory factor analysis. The remainder is used for confirmatory factor analysis, using the EQS structural equation modeling program. The 9 Level of Functioning scales and 14 Personal Problem Profile scales were submitted to exploratory factor analysis using oblimin rotation due to the theoretical likelihood that the resulting dimensions of level of functioning would be related to one another. Maximum likelihood factoring was chosen, because of the planned move to confirmatory factor analysis.

Results

Using the 1.0 cutoff for evaluation of eigenvalues, a seven factor solution emerges, which explains 49.7% of variance. Using a .3 cutoff, no indicators cross-load on more than one factor. All LOF scales factor with their associated PPP scales. Two sets of LOFs and PPPs factor together; items related to Thinking and items related to Self care and Basic needs factor together, as do items related to Role performance and Social-legal issues. Correlations between factors range from .04 to .43.

Because of the theoretical interest in a nine factor model, this solution was also examined. This model explains 56.3 % of the variance. All PPP indicators load with their associated LOF scales on a separate factor. In addition, the PPP scales related to Self care and Basic needs, which were weakly loaded in the seven factor solution, load strongly onto their own factor in the nine factor solution. No indicators cross load to other factors. Correlations between the factors range from .05 to .46. Both models were carried forward into the confirmatory factor analysis (CFA).

The seven factor model does not fit the data, with a CFI of .796. Examination of the modification indices indicates that upwards of 20 cross loadings of indicators are necessary to achieve adequate fit. The nine-factor model was also tested. Maximum likelihood factoring was used, and no special problems were observed during optimization. This model exhibits improved fit, with a CFI of .867, and examination of the modification indices indicate that relatively few cross loadings are necessary to achieve fit. Allowing five of 23 indicators to cross load produces a model which fits the data with a CFI of .900, however three of these cross loadings are very small (less than .2).

It is important, therefore, to consider possible reasons for inadequate fit of the hypothesized model. The model may simply not fit these data, because it does not contain important theoretical elements. Another possibility is the existence of second order factors which are influencing the pattern of relationships among the first order factors and the indicators. Two indicators of second order factors are: 1) Wald estimates which indicate that increased fit can be attained by allowing error terms to correlate, and 2) high correlations between factors. Neither of these conditions exists in this model.

Monte Carlo studies indicate that "large" models, even when known to fit perfectly, generate fit estimates lower than "small" models. Sample size is also an issue. While large sample sizes are needed to achieve stability in matrices, sample sizes which are too large impose power constraints on the model fitting process. In addition, high loadings on factors contribute to increased power, resulting in the same constraints (Gerbing & Anderson, 1994). In this model, factor loadings are high, in some cases almost perfect, and the sample and model sizes are large.

Given the evolving understanding of model fit in the field of structural equation modeling, it would be premature to reject the hypothesized 9 factor model based on the .90 cutoff for the CFI. Further exploration of both theoretical and technical sources of model mis-specification is needed. These analyses do, however, lend some support for the use of the existing Level of Functioning scales. Therefore, the nine LOF scales were carried forward in subsequent multivariate analysis.

Methodology

What are the multivariate predictors of placement outcomes? The family preservation sample consists of the 316 children who received family preservation services between the Fall of 1990 and July of 1993. The data set contains information on demographics, child level of functioning (CCAR), service needs, interventions and placement outcome. Logistic regression models, using backward selection with a likelihood ratio criteria, were developed to examine the correlates of placement prevention. Preliminary screening models were developed using groupings of variables, with significant variables advancing to a final comprehensive model.

Results

Prediction of placement is found to be dependent on the time frame under consideration.

Final Logistic Model: Predictors of Placement at 0-3 Months Post-Intervention

Variable	Beta	Standard Error	p	R	Odds Ratio
Age	-.0823	.0480	.0865	-.0666	.9210
Socio-Legal Behavior LOF 8	.0454	.0195	.0201	.1269	1.0464
Number of Follow-up Services	-.3022	.1441	.0360	-.1064	.7392
Previous Group Home Placement	1.8840	.5267	.0003	.2259	6.5796
Family Mental Health	1.0555	.4415	.0168	.1325	2.8434
Chi Square Goodness of Fit				.2397	
-2 Log Likelihood				.9873	
df				230	

This model provides good fit to the data, based on both the Goodness of Fit and -2LL statistics. The presence of higher (more dysfunctional) intake ratings on the Socio-Legal LOF scale increases the odds of placement by a factor of 1.04 for each 1 point increase on the 50 point scale. The impact of the presence of family mental health issues as a presenting problem is greater, increasing the odds of placement by a factor of 2.84. The presence of a previous group home placement increases the odds of placement by a factor of 6.57, by far the greatest individual impact on placement odds. An increase of one follow-up service results in a 26% decrease in odds of placement. Note that child age is not individually significant, however its presence in the model is necessary for model fit.

Final Logistic Model: Predictors of Placement at 3-6 Months Post-Intervention

Variable	Beta	Standard Error	p	R	Odds Ratio
Projected Foster Care Placement	-1.6254	1.1141	.0446	-.0425	.1968
Child Behavior Problem	-2.3157	.8807	.0086	-.2631	.0987
Alcohol Monitoring Service Target	1.7426	.8053	.0305	.1944	5.7120
Time Management Service Target	2.3108	.9829	.0187	.2229	10.0823
Chi Square Goodness of Fit				.1834	
-2 Log Likelihood				1.000	
df				127	

This model also provides good fit to the data. A previous foster care placement reduces the odds of placement by 80%; the presence of child behavior problems reduces the odds by 90%. A service target of alcohol monitoring increases the odds of placement by a factor of 5.71 and a service target of time management increases the odds of placement by a factor of 10.08.

Utility for Social Work Practice

Risk and Protective Factors: Implications for Program Design

On the service side, two service targets serve as risk factors during the later time period. The first, *alcohol monitoring*, is easily interpretable. Following a short-term intervention, these families may not be able to maintain improvement over a longer follow-up period.

The finding related to *time-management* is not as easily interpreted. Examining the pattern of relationships surrounding time management gives a picture of its relationship to other variables. A time management service target is not related to any demographic variables, including income. It is significantly related to only one presenting problem, family violence. It is related significantly to the sheer number of service targets identified, and is significantly more likely to occur in concert with the following service targets: budgeting, home-management, nutrition, depression management, mental health counseling, self esteem, stress management and provision of support services. A time management service target is not related to any variables which might cluster with formal child neglect, including neglect as a presenting problem, the presence of a pending Dependency &Neglect hearing, income, or to concrete service needs or financial needs as presenting problems. This indicates that this variable may be tapping into a cluster of attributes related to parental incapacity which manifest in terms of significant disorganization in the home, but which are not associated with those families currently involved with the social services system.

It was expected that children's level of functioning in critical domains would have predictive value with regard to subsequent placement. This was not the case for this sample. The only functioning scale which entered into a model was children's socio-legal functioning, where increased dysfunction was related to placement soon after the intervention.

Of some interest is the role of presenting mental health problems in the family. These programs should be ideally situated to maximize cooperation between family preservation and traditional mental health services. In fact, the data on service follow-up indicated great reliance on mental health programs. In spite of this, family mental health problems is the only presenting problem which results in increased risk of placement soon after service termination. More work is needed in the design of family preservation intervention in the mental health system, including scrutiny of the use of concurrent mental health services, and the congruence between services. Qualitative analysis indicated that the philosophical fit between these two traditions is poor, and workers report that families experience significant differences in service philosophy as they interact with traditional mental health services.

These findings have implications for the design of the family preservation intervention package, which may need to include concurrent substance abuse intervention and attention to the fit between IFPS and a long term substance abuse recovery process. Similarly, for families experiencing extreme disorganization and parental incapacity, longer term family-based interventions may be indicated, including the use of intensive family preservation during the immediate crisis, followed by continued home-based support services.

Model Fit: Implications for Program Decisions

Information about predictive models can be used in two ways at the program level: 1) to make decisions about the structure of interventions and 2) to make decisions about access to services. Often program administrators look to predictive research for use in the latter way.

That is, they wish to screen out families who are not likely to benefit from an established intervention. In fact, this information is almost always most useful for the first purpose. In general, risk and protective factors, and the models built of them are not sufficiently accurate in their prediction of failure to warrant denial of access to services. This information is, however, useful in examining the intervention so as to structure it to maximize use of protective factors and craft interventions to focus on risk factors.

This is certainly true for the models which emerge from this study. Although the overall models for the separate time periods fit the data relatively well, they do not predict placement very well. In both cases the model does a good job of predicting which children will not be placed correctly classifying 99% of these cases, but a very poor job of predicting which children *will* be placed. The latter is, of course, of the most interest for restricting access to services. The predictive model for the 3-6 month time frame is the best, predicting placement at 50% accuracy; however, this results in little practical usefulness. Thus, these results are useful in considering which families may be at increased risk of placement for the purpose of designing or re-designing the targeted intervention package for families with these characteristics. These results are not useful in making screening decisions regarding access to services.

With regard to the CCAR, there is need for additional work in specifying the structure of the instrument. There is also a need to examine the concurrent validity of the instrument by comparing it to other measures of children's functioning. Examination of the inter-rater reliability of the LOF scales is needed given the instrument's use as a therapist-rated measure. Another important area for future research lies in examination of the instrument's sensitivity to change, and the usefulness of change scores in assessing level of functioning outcomes.

Additional qualitative work is needed on client experience of the helping relationship. It seems likely that much of the power of this intervention lies in its approach to practice, specifically in the nature of the helping relationship. If we are to adequately model service interventions in quantitative ways, the task of measuring quality of helping relationship must be faced. An approach to measure development which is rooted in the experience of those involved in the helping relationship is imperative; especially important is the experience of clients. There remains a need to move beyond placement prevention to other more direct measures of client change, including exploration of changes in children's functioning, and the relationships between client change and distal outcomes.

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